

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1-10. (Cancelled)

11. (Currently Amended) A sensor device comprising:

~~a circuit having electrodes, wherein at least one of the electrodes comprises a molecule recognizing film formed on the electrodes,~~

a substrate;

resistance sensors formed on the substrate, each of the resistance sensors comprising:

(a) a pair of electrodes; and

(b) an electro-conductive polymer deposited on and between the pair of electrodes,

wherein the molecule recognizing film absorbing electro-conductive polymer absorbs aromatic molecules and to changes an electrical resistance in connection with a change in volume of the molecule recognizing film by absorbing the aromatic molecules inside the molecule recognizing film electro-conducting polymer; and

a transducing element to transduce transducer circuit for transducing the change in the electrical resistance of the molecule recognizing film electro-conductive polymer into an electric signals, each of the transducing element transducer circuits comprising:

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(a) a source of electric current electrically connected to the resistance sensor;

(b) a source of an offset voltage;

(c) a differential amplifier electrically connected to the resistance sensor, the differential amplifier outputting a difference between a voltage provided with the resistance sensor and the offset voltage;
and

(d) a high-gain amplifier that amplifies a voltage output from the differential output,

wherein the source of electric current, the source of the offset voltage, the differential amplifier, and the high-gain amplifier comprise thin-film transistors; and

the electro-conductive polymer includes at least one of polypyrrol, polymethylpyrrol, polythiophen, polymethylthiophen, polyaniline, and polyphenylene vinylene ~~a thin-film transistor.~~

12. (Currently Amended) The sensor device of Claim 11, wherein the ~~molecule recognizing film~~ electro-conductive polymer is ~~formed on the electrode~~
~~comprises a film formed~~ from at least one microdot ejected from an ink-jet head.

13. (Cancelled)

14. (Previously Amended) The sensor device of Claim 12, wherein at least one micro-dot comprises a dot-shaped area.

15-23. (Cancelled)

24. (NEW) A sensor device comprising:

a substrate;

resistance sensors formed on the substrate, each of the sensors comprising:

- (a) a pair of electrodes; and
- (b) an electro-conductive polymer deposited on and between the pair of electrodes, wherein the electro-conductive polymer absorbs aromatic molecules and changes an electrical resistance by absorbing the aromatic molecules inside the electro-conductive polymer; and

a transducer circuit for transducing the change in electrical resistance of each of the electro-conductive polymer into an electrical signal, each of the transducer circuits comprising:

- (a) a source of voltage that provides a voltage to a resistance sensor;
- (b) a source of electric current flowing as an offset current; and
- (c) a differential amplifier that amplifies a differential current between a current flowing through the resistance sensor and the offset current,

wherein the source of voltage, the source of electric current, and the differential amplifier comprise thin-film transistors; and

the electro-conductive polymer includes at least one of polypyrrol, polymethylpyrrol, polythiophen, polymethylthiophen, polyaniline, and polyphenylene vinylene.

25. (NEW) The sensor device of claim 24, further comprising a thiol molecule film formed between the electrodes and the electro-conductive polymer.

26. (NEW) The sensor device of claim 11, further comprising a thiol molecule film formed between the electrodes and the electro-conductive polymer.